

## CLAIMS

1. A communications network comprising:
  - a communications station;
  - electrical transmission lines connecting the communications station to user terminations;
  - data transmission means;
  - optical carriers connecting the data transmission means to at least one interface, located between the communications station and user terminations, for converting optical signals from an optical carrier into electrical signals for transmission over one at least of the electrical transmission lines;wherein, for each of a plurality of user terminations requiring data service:
  - (a) a dedicated one of said optical carriers is provided;
  - (b) the data transmission means comprises modulation means for converting input data signals into output signals suitable for transmission over the electrical transmission lines, followed by means for modulating the output signals onto an optical signal;
  - (c) the interface has optoelectrical conversion means arranged to recover said output signals and feed them to the electrical transmission line serving the relevant user termination.
2. A network according to claim 1 including data reception means, connected at the communications station to the electrical transmission lines for receiving data from the user terminations.
3. A network according to claim 1 including data reception means, connected to the optical carriers for receiving data from the user terminations, wherein the interface includes electrooptical conversion means arranged to receive signals from the electrical transmission lines and feed them to the optical carrier serving the relevant user termination.

4. A network according to any preceding claim in which the optoelectrical conversion means and the electrooptical conversion means are together provided by an electroabsorption modulator.
5. A network according to claim 1, 2 or 3 in which the optoelectrical conversion means is a zero-bias photodiode.
6. A network according to claim 1, 2 or 3 in which the optoelectrical conversion means is a semiconductor device, and including means to draw power from the electrical transmission lines for providing power to the semiconductor device.
7. A network according to claim 6 in which the optoelectrical conversion means is a photodiode, and the means to draw power from the electrical transmission lines are arranged to provide photodiode bias.
8. A network according to claim 7 in which at least one of the electrooptical and the optoelectrical conversion means is a semiconductor device.
9. A network according to claim 7 in which the electrooptical conversion means is a Fabry Perot laser diode, and wherein the output wavelength of at the electrooptical conversion means is determined by a seed wavelength fed from the communications station.
10. A network as claimed in claim 8 or claim 9, wherein means are provided to draw power from the electrical transmission lines so as to provide a bias to the or each semiconductor device.
11. A network as claimed in any preceding claim, wherein the optical carriers are each formed by a respective wavelength channel.

12. A network as claimed in claim 11, wherein at least some of the wavelength channels are carried over a common optical medium, preferably over a common optical fibre.

13. A network as claimed in any of claims 1 to 7, wherein the optical carriers are each formed by a respective optical transmission line.

14. A network as claimed in any of the preceding claims, wherein the communications station is a telephone exchange.

15. A telecommunications network comprising:

a telephone exchange;

electrical transmission lines connecting the exchange to user terminations;

data transmission means;

optical transmission lines connecting the data transmission means to at least one interface, located between the exchange and user terminations, for converting optical signals from an optical transmission line into electrical signals for transmission over one of the electrical transmission lines;

wherein, for each of a plurality of user terminations requiring data service:

(a) a dedicated one of said optical transmission lines is provided;

(b) the data transmission means comprises modulation means for converting input data signals into output signals suitable for transmission over the electrical transmission lines, followed by means for modulating the output signals onto an optical signal;

(c) the interface has optoelectrical conversion means arranged to recover said output signals and feed them to the electrical transmission line serving the relevant user termination.